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THE RESULTS OF EXCIMER LASER VISION CORRECTION IN PATIENTS WITH MYOPIA

D. A. Ikramov
1Andizhan State Medical Institute, ndm2@mail.ru

A F. Ikramov
Andizhan State Medical Institute

B.T. Buzrukov
Tashkent Pediatric Medical Institute

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Andizhan State Medical InstituteTashkent Pediatric Medical Institute

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[1]Ikramov D. A., [1]Ikramov A F., [2]Buzrukov B.T.

[1]Andizhan State Medical Institute, 170100, Uzbekistan, Andizhan, Y. Atabekov Street, 1
[2]Tashkent Pediatric Medical Institute, 100125 Uzbekistan Tashkent, Bog'isamol 223

Resume

The distribution of patients according to the degree of preoperative refraction showed that mild myopiya (-0.8 -2.99 D) was obcerved in 12% of cases moderate (-3.0 -5.99 D) in 45%.high (-6.0 -9.99 D) and very high (-10. 0 -13.65 D) in 43% of cases respectively.

Keywords: exsimer laser surgery. Photorefractive keratectomy myopiya.

МИОПИЯ БИЛАН ОҒРИГАН БЕМОРЛАРДА КЎРИШНИНГ ЭКСИМЕРЛАЗЕРЛИ КОРРЕКЦИЯСИДАН КЕЙИНГИ НАТИЖАЛАРИ

Д.А. Икрамов[1], А.Ф. Икрамов[1], Б.Т. Бузруков[2]

[1]Андижон давлат тиббиёт институти,
[2]Тошкент педиатрия тиббиёт институти

Резюме

Беморни ташхисдан олдинги рефракция даражасига кўра тафсифланиши қуйидагиларни исботлади. Миопия енгил даражаси (-0.8 -2.99 D) 12% ҳолларда кузатилди. Ўрта даражаси (-3.0 -5.99D) 45% Юқори даражаси (-6.0 -9.99 D) ва жуда юқори даражаси (-10.0 -13.65 D) 43% ҳолларда кузатилди.

Калит сўзлар: эксимеллазер жарроҳлик фоторефракцион керакэктомия, миопия.

РЕЗУЛЬТАТЫ ЭКСИМЕРЛАЗЕРНОЙ КОРРЕКЦИЕЙ У БОЛЬНЫХ С МИОПИЕЙ

[1]Икрамов Д.А., [1]Икрамов А.Ф., [2]Бузруков Б.Т.

[1]Андижанский государственный медицинский институт,
[2]Ташкентский педиатрический медицинский институт

Резюме

Распределение пациентов в зависимости от степени предоперационной рефракции показало, что миопия слабой (-0.8 -2.99 D) наблюдалась в 12 % случаях, средней (-3.0 -5.99 D) в 45 % высокий (-6.0 -9.99 D) и очень высокий (-10. 0 -13.65 D) в 43% случаях соответственно.

Ключевые слова: эксимер лазерная хирургия фоторефракционная кератэктомия, миопия.

The urgency of the problem

Myopia is one of the urgent problems of modern ophthalmology, it affects 10 to 25% of the world's population [1,2]. Currently, refractive errors (first of all, myopia) are the leading pathology of the organ of vision among people of working age, markedly worsening the quality of life of myopic patients. In recent decades, the frequency of myopia as a whole has increased everywhere, amounting to 30–40% in European countries and in Russia, and reaching 70% or more in Southeast Asia. It is important to emphasize that the progression of myopia can lead to serious irreversible changes in the eye and 5 significant loss of vision, and complicated myopia is one of the main causes of visual disability. On this basis, the fight against myopia can be viewed as a state task, the solution of which requires the implementation of active and

broad measures to prevent this disease and complications (Libman E.S, 2005).

Numerous studies have confirmed the high efficiency of excimer laser operations in achieving high visual acuity, improving the quality of life and social adaptation in patients with myopia (Pershin B.B, Ovechkin I.G 2004). High efficiency, safety and predictability of LASIK and Femto LAZIK [4]. The stability of these techniques requires more careful study, since it is known that the presence of initial myopic refraction, and especially high myopia, is a risk factor for the regression of the refractive result in the late postoperative period [5].

Over the past period of time, many aspects related to the use of the PRK method have been rather well studied, but at the same time there is little data on eye hydrodynamics, the state of intraocular pressure and the accommodative apparatus after excimer laser vision correction. There is no assessment of the results of PRK depending on the degree of myopia and individual characteristics of the patient, and this is essential for objective prediction of not only the closest, but also long-term results of treatment, development of the most optimal tactics for managing the postoperative period, taking into account individual characteristics of both local and general .

Objective: examine the results of photorefractive keratectomy in patients with myopia.

Material and methods

The work was performed at the Department of Eye Diseases of the Andijan State Medical Institute and in the excimer laser surgery department of the Visus Correction Center, is a comprehensive clinical study and is based on the results of diagnostics and treatment using 125 patients with 210 myopia with myopia of different degrees from 18 to 45 years.

All patients had inpatient myopia (on one or both eyes), used glasses or contact lenses before the operation and were not satisfied with these correction methods for various subjective or objective reasons. A clinical ophthalmologic examination was performed using traditional diagnostic methods with the inclusion of additional methods adequate to the goal and objectives of the techniques. Photorefractive keratectomy was performed on a Nidek EC-5000 excimer laser (Japan) using our own developments.

The traditional diagnostic ophthalmologic examination consisted of the following methods: visometry, autorefractometry (in natural conditions and cycloplegic conditions), keratometry, contactless and contact tonometry (contactless on the NT-1000 tonometer and Ndek, Japan) and contact through the cornea across Maklakov and through the sclera and eyelid with a TGDts-01 “PRA” tonometer (RSF), pachykeratometry (using the UP-1000 pachymeter (Nidek, Japan)), anterior segment of the eye and fundus biomicroscopy, including the periphery (on a slit lamp SL-I600 (Nidek, Japan), with used Goldman’s three-mirror lens (ZOMZ, Russia), 78D high-optic aspherical lens (Volk, USA), and Vista-20 direct ophthalmoscope (Keeler, Germany))

Tonography was performed on a TNC-100 instrument according to the method of A. P. Nesterov. The relative accommodation stock for the near study was carried out according to the method of E. S. Avetisov using the Golovin-Sivtsev table for a short distance

In the diagnostic complex, we used a technique for modeling postoperative ophthalmological status using soft contact lenses for patients who did not use any types of correction or used only spectacle correction. The use of this technique allowed us to determine the patient's adaptive capabilities, make adjustments to the planning of the scope of surgical intervention depending on the age and professional needs of the patient and, in some cases, even refuse the operation.

Photorefractive keratectomy was performed according to the traditional standard technique. In the early postoperative period (first 3 days), antibiotic installations were prescribed, every 3 hours (except for sleep time) continuous wearing and a bandage contact lens were recommended. removed and prescribed instillation of corticosteroids (dexamethasone 0.1%, prenacid 0.1%, effluoridex 0.1%) in a decreasing pattern for 2-3 months.

Statistical processing was carried out on Genuine intel Pentium (t) Processor PC in Windows XP Professional using the Statistical data analysis package.

Results and discussion

The distribution of patients according to the degree of preoperative refraction showed that mild myopia (-0.8-2.99 D) was observed in 12% of cases, moderate (-3.0 -5.99 D) in 45%, high (-6, 0 -9.99 D) and very high (—10.0 -13.65 D) in

43% of cases, respectively. Before the intervention, the average corneal thickness in the center (PID) of the pupil was high (on average 588 ± 10.5 μm) and sufficient for carrying out a planned excimer laser operation in 85% of cases. With corneal thickness below the statistical values of the norm from 472 to 520 microns (on average 509 ± 10.44 microns) .. On average; the length of the anteroposterior axis (PZO) of the eye varied from 24.55 to 26.67 mm; IOP averaged 17.62 ± 1.6 mmHg. St. Voltage of the corneoscleral shell of the eye (□) was determined using the Laplace formula: □ = P0 E□ L / 4 □ TsTR, where Ro E is the IOP level taking into account the rigidity of the corneoscleral shell of the eyeball (mmHg), L - PZO the eyeball (mm), CTR - the thickness of the cornea (mm).

The table shows that there is a significant decrease in the THCC (Corneal thickness in the center) and a slight decrease in the coefficient of corneoscleral rigidity. Indicators FRA (Front-rear axle) not significantly different from those before the operation.

When analyzing the results of PRK operations, the following data were obtained: in patients with myopia and myopic astigmatism, the spherical equivalent ranged from -0.8 D to -13.65 D (average -5.22 ± 2.33 D). The value of astigmatism ranged from 0 to –6.0 D, in 32% of cases it did not exceed –0.5 D (physiological). On average, the degree of significant astigmatism (more than -1.0 D) was -1.93 ± 1.12 D.

6 months after surgery, in patients aged 18-25 years old, the average visual acuity was 0.95 ± 0.12, in patients aged 26-35 years, 0.92 ± 0.12, in the group of patients aged 36-45 years, 0.92 ± 0, 16 12 months after surgery, the average visual acuity in all patients was 0.93 ± 0.32. Depending on the visual acuity indicators in the postoperative period, the patients were divided into 3 groups:

The group I included 92% of the patient with visual acuity of 0.9-1.0, who had the most correctable visual acuity before the operation of 0.7-1.0.

In group II - 7%, with visual acuity of 0.5-0.6, with medium and high degrees of preoperative astigmatism, with amblyopia of moderate degree and visual acuity before surgery 0.3-0.6.

In III - (less than 1% of all cases) 3 people with a decrease in visual acuity of up to 0.2-0.05 as a result of a gross violation of the mode of instillation of corticosteroids, which led to the appearance of rather coarse fibroplasia in the ablation zone. These patients were prescribed resorptional therapy for periods of 3-6 months. Their visual acuity so far remains at the level of 0.6-0.7

According to our research data, at 12 months after surgery, the frequency of residual opacities (including minimal ones) was 4.8%, of which only 1.18% were clinically significant.

To assess the results of PRK, it is necessary to take into account the functional state of patients according to subjective data. A significant role in overall patient satisfaction with the results of surgical vision correction is played by the comfort of the early postoperative period, directly dependent on the speed and nature of reepithelialization.

A complete reepithelization on the 3-4th day occurred in 98.6% of cases, in 1.4% it ended by the 5th day. The corneal syndrome was assessed on a three-point scale. A weak degree of pain syndrome (arresting ordinary analgesics without disturbing night sleep) was observed in 65% of cases, a moderate degree (arresting with stronger analgesics for a shorter period) was detected in 30%, a pronounced pain and corneal syndromes were observed in 5% of cases respectively.

To reduce pain sensitivity in the period of reepithelization, soft contact bandage lenses made of silicone hydrogel were used. Slow reepithelization was not observed in any case.
The use of a bandage silicone-hydrogel contact lens made it possible to reduce hypoxic phenomena that adversely affect the regeneration of the epithelium in the operating area, while maintaining the function of protection from the mechanical effect of the eyelid when blinking and accidental contact of foreign and irritating substances on the surface of the wound.

When conducting control examinations after PRK, attention was drawn to the fact that complaints about difficulties at work at close distances were observed more often, so everyone was recommended comprehensive treatment carried out in our center, including accommodation training in Avetisov, Dashchevsky, electrostimulation of the visual analyzer, installations irifrin 2.5% overnight.

Table 1.

Dynamics of clinical and functional parameters in the examined patients

Terms of observation	Refraction (D)	THCC (μm)	FRA	σ
Before surgery	- 7,5 ±1,3*	537±11.5*	26,6±3,2*	185±8.2*
After 1 month	-0,48±0,03**	419±10.2**	26,6±1,2**	183±7.9**
In 6 months	-0,5± 0,04**	437±10.5**	26,8±2,4**	187±8.5**

*Mean values * and ** are statistically significant (p≤ 0.05).*

Patients noted a subjective improvement after treatment for an individually defined period of time, which allows us to conclude that specialized exercises and activities should be included in the complex of treatment after refractive surgery for faster and better recovery of accommodation muscle. This data allows us to conclude that for more quick and complete functional rehabilitation of patients in the complex of treatment in the postoperative period it is necessary to include functional accommodation training apparatus.

Findings

Achievement of stable clinical and functional results after PRK is largely determined by the preservation of corneoscleral rigidity, which depends on the initial values of intraocular pressure, the size of the anterior-posterior segment of the eyeball and the thickness of the cornea in the central optical zone. and improve the accuracy of the result of the correction in achieving the planned refraction.

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